Leveraging the Power of Learning to Overcome Negotiation Deadlocks in Global Climate Governance and Low Carbon Transitions

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Abstract

Learning among actors within the United Nations Framework Convention on Climate Change (UNFCCC) negotiations helped transferring climate policies across countries and changed negotiation positions. Together with group pressure and leadership by key governments and non-national actors, experience, knowledge and belief-based learning types altered the UNFCCC negotiation dynamics and facilitated the Paris Agreement. Governments, the UNFCCC secretariat and NGOs created opportunities for government representatives to explore policy options and learn from each other' successes of designing and implementing low carbon policies. These experience exchanges during and beyond the UNFCCC meetings were established to help countries share their experiences with low carbon economic development plans to address climate change while decoupling economic growth. Based on elite interviews, participant observation and document analysis, this contribution examines how learning facilitated breakthroughs in international climate negotiations. It finds that structured experience exchange of and reflection on other countries' and non-national actors' successful policy experiences can modify national interests as policymakers increasingly understand that climate action can support economic growth. This resulted in a higher willingness to take on more ambitious climate action commitments. Sharing experiences with climate policies can facilitate other actor's learning how they can adapt successful policies to their specific framework conditions.

Key words: Learning, Climate Governance, Low Carbon Economic Development, Global Governance

INTRODUCTION

Addressing global environmental challenges requires cooperation among national governments and non-national actors that find themselves interdependent of each other (Biermann, 2014; Ostrom, 2010). However, intergovernmental negotiations frequently struggle to achieve breakthroughs due to incompatible national interests, asymmetric power relationships, poor negotiation management (Monheim, 2014) and domestic barriers (Daugbjerg & Swinbank, 2016). Learning is understood as a positive means to identify compromise solutions and facilitate policy change (Bernstein & Cashore, 2012), while it can also be distorted by distrust, self-serving assessments of fairness, information asymmetries and over-confidence (e.g. Odell, 2009; Thompson, 2001). Learning is widely regarded as important factor that can influence policy change mostly on the sub-national (Bellinson & Chu, 2018), national (McNutt & Rayner, 2018) and regional (e.g. European Union) policymaking levels (Dunlop & Radaelli, 2016; Feindt, 2010). It also matters for transnational city networks such as C40 (Lee, 2018). There are however limited insights on the role of learning on the international level. For example, Haas and Haas (1995) and Nye (1987) point out that learning somehow matters in global governance, but we lack a clear understanding of how learning can facilitate international agreements addressing particularly wicked cross-border problems of the 21st century. Gaps remain in the literature to better understand learning as a potentially facilitating factor towards achieving breakthroughs in international (environmental) negotiations. Addressing these gaps is highly significant as learning can subsequently used more strategically to resolve negotiation deadlocks.

The empirical analysis focuses on climate change as problem that is particularly difficult to address due to its cross-border nature and complexity (Ostrom, 2010). Until the 2015 Paris Agreement, the United Nations Framework Convention on Climate Change (UNFCCC) negotiations were deadlocked for over 20 years due to incompatible national interests (Gupta, 2012; Keohane & Victor, 2010) while the objective of avoiding dangerous climate change was slowly drifting out of reach (IPCC, 2014; Jacobs, 2012). Additional efforts to those pledged in the Nationally Determined Contributions NDCs (Michaelowa & Michaelowa, 2017) are still required. Nevertheless, na-

tional governments and non-national actors alike regarded the adoption of the Paris Agreement on Climate Change in December 2015 as a major breakthrough (Falkner, 2016; Jacobs, 2016). It concluded a decades-long period of deadlocked international negotiations about no less than sustained economic development and prosperity in the 21st century, while also averting and adapting to the unavoidable consequences of climate change. The Paris Agreement was made possible by a number of factors. These include the concerted effort of both national governments and non-national actors in the form of pioneering climate mitigation and adaptation policies on the national and sub-national level (Nachmany et al. 2014), global public pressure, a bottom-up process of INDCs and public commitments, skillful process management by the French presidency and the UNFCCC secretariat as well as falling costs of low carbon technologies, regulatory leadership on the national and sub-national level and the development of a climate finance architecture compensating and supporting developing countries to pursue low carbon economic development pathways (Falkner, 2016; Figueres, 2015; Ivanova, 2016; Oberthür, 2016).

To better understand how learning can facilitate breakthroughs in international negotiations, this contribution further develops a theoretical framework (Rietig & Perkins, 2018) from the European Public Policy literature to analyze decision-making in international negotiations. The learning framework is based on key theoretical perspectives situated at the intersection of public policy and international relations within institutionalism and constructivism (e.g. Argyris & Schön, 1978; Haas & Haas, 1995; March & Olsen, 1975; Nye, 1987; Sabatier, 1987). It emphasizes that individuals and organizations need to reflect on any new information or experiences by actively thinking about these inputs and considering how they match with their pre-existing understanding of an issue. Only if individuals and/ or organizations reflect on such new information or experiences, learning can occur. The framework differentiates three basic types of learning across the individual and organizational levels (Rietig & Perkins, 2018). Previous studies on learning focused in their conception of learning on the act of acquiring information and experience (e.g. Dunlop & Radaelli, 2016; Haas & Haas, 1995). Yet it is precisely the aspects of reflection and behavioral change that are necessary for policy change to occur. Early work on learning (e.g. Argyris & Schön, 1978; March & Olsen, 1975) places considerable emphasis on the essentially reflexive nature of learning, treating learning as an active process of change. Learning can be a relevant

factor in arriving at policy outcomes (Bernstein & Cashore, 2012), which can also interact with other factors such as the institutional machinery, political interests, bargaining and coercive power (Janis & Mann, 1977).

The central research question is 'How can learning among national and non-national actors involved in international climate governance be identified and if present, to what extent did it alter government's negotiation positions to facilitate the negotiations resulting in the 2015 Paris Agreement? The key contribution of this article is to advance our understanding of the role learning can play in overcoming deadlocks in intergovernmental negotiations. There is a gap in the learning literature on whether and how learning can contribute to achieve breakthroughs in negotiations, i.e. contribute to more effective global governance. This is not only relevant for climate change, but could also be applied to other difficult negotiations on challenges of the 21st century.

The article proceeds in four parts. The next section will briefly analyze the learning literature and present a learning framework applicable to identify and evaluate learning in international negotiations. Following the methodology section, the empirical section will apply the learning framework to the UNFCCC negotiations leading up to the 2015 Paris Agreement. The discussion and conclusion section will reflect on the analytical strength of the learning framework to understand learning as a key factor that facilitated arriving at a 'common landing zone' for the Paris Agreement.

LEARNING IN INTERNATIONAL NEGOTIATIONS

Learning is widely understood in the International Relations and Public Policy literature as updating of beliefs, acquisition of skills and knowledge, acting upon experiences or detecting and correcting errors (Dunlop & Radaelli, 2013; Zito & Schout, 2009), usually resulting in modified behavior. We can differentiate between learning among the individual negotiator or policymaker (Dunlop, 2009) and a number of individuals that are involved in a collective process of e.g. gaining new knowledge through trial and error or assessing and disseminating this new knowledge. Actors can also benefit from collective products of learning, which can include rules, strategies or shared ideas (Gerlak & Heikkila, 2011, 623; Heikkila & Gerlak, 2013).

The learning literature spans over five decades and across a number of disciplines and sub-disciplines including management studies, social psychology, education, International Relations and Public Policy. A partly overlapping and increasingly differentiated typology of learning emerged and was discussed, reviewed and applied predominantly in the Public Policy literature with inspiration also drawn from the Organizational Studies literature. These learning types include among others social learning, organizational learning, governance learning, policy learning, political learning and policy-oriented learning (e.g. Bennett & Howlett, 1992; Hall, 1993; Kemp & Weehuizen, 2005; Radaelli & Dunlop, 2013; Zito & Schout 2009). The Public Policy literature points towards the relevance of a 'policy broker' or 'policy entrepreneur' to initiate learning processes and facilitate policy change (Howlett et al., 2017; Mintrom, 2013; Sabatier, 1988). We can identify a number of milestone contributions for understanding the influence of learning on negotiations and policy change that served as effective basis for analyzing learning over the previous decades. The conceptualization of learning used in this analysis is based on March and Olsen's (1975) illustration of the link between learning of individuals and the transfer or learning to the level of the organization, Argyris and Schön's (1978) explanation of learning as detecting and eliminating errors as single-/double loop learning and on Janis and Mann's (1977) emphasis on non-learning, i.e. the inability or a conscious decision not to engage with a new input. Learning can play an important role in modifying national interests and influencing international regimes (Nye, 1987), while actors can alter their behavior and strategies to progress towards the adjusted national interest as a result of their learning (Haas, 1980).

To be able to assess whether learning occurred in a negotiation process and to what extent it influenced the negotiation outcome, either by facilitating or obstructing agreement among negotiation parties, it is essential to adopt an understanding of learning that requires reflection of the learner as a conscious cognitive process. The framework presented in this contribution is a meta-theoretical framework that draws on the Public Policy, Organizational Studies and International Relations literature. A key condition for learning to occur is that individuals and/ or organizations reflect on an input such as new information or an experience by carefully thinking about how this input matches with their pre-existing beliefs, e.g. their world view and understanding of an issue. To reflect on an input, the learner needs to be cognitively aware of the in-

put and actively deliberate it. This reflection is a pre-condition for learning to occur. If there is no reflection, learning does not occur (Rietig & Perkins, 2018).

We can differentiate between three basic archetypes of learning that consolidate the various overlapping classifications of learning that emerged from the Public Policy, International Relations and Organizational Studies literatures. Following a reflection on knowledge, factual learning occurs. If an individual or organization reflects on previous experience, experiential learning occurs. If the individual and/ or organization subsequently also changed underlying beliefs, they engaged in constructivist learning (Rietig & Perkins, 2018).

Individuals and organizations frequently engage in *factual learning* when they receive new information or when they rearrange previous knowledge once they find themselves in a different context (Radaelli, 1995). They reflect on the input while they are cognitively processing the new information and increase their existing knowledge base (Argyris & Schön, 1978). In a negotiation context, actors for example learn about technical details of the negotiation topic, underlying international law such as the content of previous agreements, negotiation positions of their own and other countries as well as how compatible positions are in terms of negotiation margins and 'red lines'. The information sources for factual learning are usually scientific studies, policy briefs, media articles (including negotiation-specific news outlets such as the Earth Negotiations Bulletin providing summaries of on-going negotiations), submissions of other negotiation parties to the UN and their related bodies, as well as position papers by outside actors and non-state actor stakeholders. Factual learning can also result from verbal or written accounts of other actor's experiences.

Experiential learning is the most frequent type of learning in negotiation processes and occurs once actors reflect on their previous experience in similar situations, draw conclusions on their or other actor's behavior and transfer this experience to the current situation to devise a strategy of how to negotiate, present information or form coalitions. It refers to 'how' actors behave in negotiations based on their previous experience, practice of becoming skilful negotiators and reflection on which negotiation tactics worked in similar past situations or resulted in negotiation deadlocks/ breakdowns. Experiential learning is the most frequent form of learning observed in the literature across different levels of governance and has been awarded different labels including political learning (May, 1992), policy-oriented learning (Sabatier, 1987), learn-

ing-by-doing and single-/double loop learning that detects and corrects behavioral errors (Argyris & Schön, 1978; Dunlop, 2009) as well as learning how to better engage in lip-service to manipulate negotiation partners (Koch & Lindenthal, 2011).

As a consequence of factual or experiential learning, actors can change their underlying beliefs about how they see an issue, for example on nuclear weapons or environmental protection (Nye, 1987; Haas & Haas, 1995), which means that they engage in constructivist learning. Beliefs refer to how a person or organization views the world. They include a normative understanding of how the world, and by extension, negotiation outcomes and implementing policies 'ought' to be. They are directly linked to the national interest, i.e. a country's belief of what they want to achieve in negotiations that best matches with the country's normative understanding of which negotiation outcomes would be beneficial to its' citizens. The following table summarizes the theoretical framework on learning.

	Factual learning	**Experiential learning**	**Constructivist learning**
Individual level	Individual actors have acquired (e.g. from studies) and reflected on new information; increased knowledge and expertise deployed by actors in their task environment.	Active engagement with particular issue through direct experience and reflecting on successes and failures to enhance actors' existing political or bureaucratic practices and competencies.	Changed personal norms, values or policy beliefs; underpins new and/or reinforced personal commitments and actions.
Organizational level	New knowledge is acquired by and transmitted through an organization; reflection, incorporation and use of knowledge in organizational activities and/or to inform organizational position.	Critical reflection on existing practices and performances within context of existing organizational goals; the accompanying development and/or refinement of new organizational processes, strategies and behaviors.	Change in organizational beliefs and values over time; institutionalization of normative beliefs, the reframing of organizational goals and discontinuous organizational action.

Table 1. Criteria for identifying learning in the policy process. Source: Rietig & Perkins, 2018: 493.

Although learning is an important intervening factor for policy change and negotiation outcomes, it is not the only explanation and needs to be analyzed in conjunc-

tion with other factors such as defensive avoidance (Janis & Mann, 1977), the institutional machinery, voting majorities or the power of policy entrepreneurs (Mintrom, 2013). It is possible for negotiation outcomes to occur without learning processes, i.e. if there is no reflection on the input, the input does not result in additional knowledge or experience, or if the actor does not form or adjust related beliefs. Actors may simply not reflect on an input due to time constraints, lack of other resources, following orders or an unwillingness to engage with the issue, which means that they enter a state of defensive avoidance (Janis & Mann, 1977; Rietig, 2018). Conventional negotiation tactics include making strategic use of power asymmetries such as agreeing deals behind the scenes, venue shopping, forming coalitions to secure a blocking minority or voting majority. They furthermore include making use of procedural tactics, offering side-payments and suggesting a quid-pro-quo on other negotiation topics or policy areas outside the immediate negotiations (Elgström & Jönsson, 2000; Tallberg, 2006; Warntjen, 2008). This literature points towards the relevance of 'gains' from participation in negotiations and voting power within international institutions and thus ultimately the importance of parties' ability to protect national interests. Behind-closed-door deals and small groups taking leadership roles can result in low effectiveness and failing to win the support of all actors necessary to arrive at a shared decision (Monheim, 2014).

Policy entrepreneurs are crucial agents that can facilitate or hinder learning by others. They are very dedicated individuals in central decision-making positions with access to the negotiations, frequently in central leadership roles (Braun, 2009; Mintrom, 2013; Mintrom & Norman, 2009). Frequently they have learned from their own or other's failures and successes in previous negotiations. They could e.g. have reflected on the experience (including positives and errors), and devised strategies how they can take better control of the decision-making process via various policy entrepreneurial strategies. They can also facilitate the learning of other actors by allowing them to engage in the process as well as encouraging them to reflect on the experience and new knowledge. Subsequently, there are two ways how learning can be transferred into the negotiation outcome. Policy entrepreneurs, who have learned in the past, either use conventional bargaining strategies and negotiation tactics to push their proposal through the decision-making process (i.e. via power asymmetries) or they act as teachers (Bomberg, 2007; McNutt & Rayner, 2018). As teachers they choose to engage with

other actors, explain to them why their policy proposal is in the other actor's interest and convince them to support the proposal. The advantage of the 'teaching' approach is that it may result in self-reinforcing dynamics when the negotiation partners reflect on the input by the policy entrepreneurial teachers and subsequently change their beliefs (Rietig & Perkins, 2018). This may in turn enable the learners to become teachers and thus agents of policy change in subsequent negotiations.

The following sections use the above theoretical framework, which places the pre-requisite of 'reflection' by the individual and organizational learning agent at the heart of its analysis, to determine to what extent learning facilitated the breakthrough in the 2015 climate change negotiations resulting in the Paris Agreement.

Methodology

To determine whether learning did indeed take place, the learning literature concluded that an observation time frame of about a decade is appropriate (Radaelli, 2009). Therefore, the analysis covers the years between 2005 and 2015, from the entering into force of the Kyoto Protocol to the adoption of the Paris Agreement. The Paris Agreement makes for an interesting and relevant test case of learning as it results from a decade-long negotiation process involving various political interests. The research triangulates findings from document analysis, participant observation and elite interviews. The key data source is elite interviews with government representatives and non-national actors involved the negotiations leading up to the Paris Agreement as elite interviews and subsequent process-tracing (Hall, 2013) have proven to be the most appropriate methods for studying learning, leadership and the involvement of non-national actors (Bernstein & Cashore, 2012; Betsill & Corell, 2008; Monheim, 2014). The author carried out 15 elite interviews between 2013 and 2018. Interviewees included 3 members of the UNFCCC secretariat, 2 chairs of committees, 8 key negotiators as well as 2 non-national actors who closely observed and influenced the negotiations. To control for bias in the interviews, the author analyzed various documents including negotiation texts, position papers, records of speeches and Earth Negotiations Bulletin publications 2008-2015 (UNFCCC, 2009-15). To better understand the negotiation dynamics and triangulate/ confirm the primary interview and document data, the

author also attended the UNFCCC negotiations for a total of 7 weeks in 11/2009 (Barcelona), 12/2009 (Copenhagen), 6/2011 (Bonn), 5/2013 (Bonn) and 12/2015 (Paris) to observe negotiation sessions and 'side event' panels on various negotiation-related topics and took detailed notes of these sessions, which were analyzed with the interviews and documents.

The baseline for learning on the individual level is the previous experience and expertise the individual had at the outset of engaging with the new legislative proposal. Learning can be measured as a change in the status quo, the difference between the point in time when the individual began to engage with a topic discussed in the UNFCCC negotiations and the adoption of the Paris Agreement as the final step. Reflection requires time (Radaelli, 2009) and a certain autonomy from hierarchical pressures (Janis & Mann, 1977). To identify learning on the individual level, the accounts of actors about their involvement in the negotiation process would need to show that they reflected on the input in the form of additional knowledge or experience with negotiations and/or (sub-) national policies compared to the 'baseline' of their pre-existing knowledge/ experience before being involved in the negotiation or (sub-) national policymaking process (Rietig & Perkins, 2018).

Learning occurred if individuals and/or organizations gained knowledge in terms of a better understanding of negotiation topics or policies on the national or subnational level (factual learning), or increased experience by being involved in the drafting and/or negotiation process and gaining experience in applying negotiation strategies (experiential learning). Reflection on such factual or experiential learning can potentially result in constructivist learning via changed underlying beliefs (Haas and Haas, 1995; Nye, 1987; Sabatier, 1988). Learning can be transferred from the individual to the organizational level if the organization (e.g. government department, NGO) also reflects on the additional knowledge and/or experience, and possibly changes its beliefs. This is crucial for learning to be reflected in the negotiation outcome as such decisions are made on behalf of organizations. Policy entrepreneurs play a key role to translate learning on the individual level into learning on the organizational level (i.e. once someone speaks 'on behalf' of a government/ country or organization, or official position papers/ policy statements).

LEARNING IN THE UNFCCC NEGOTIATIONS LEADING UP TO THE PARIS AGREEMENT

Factual learning in the UNFCCC negotiations

There is a certain inherent fluctuation of individuals involved in the UNFCCC negotiations on behalf of their countries' government or via non-national actors. Negotiators on the diplomat level frequently work for their government's ministry of the environment, climate change, energy, foreign affairs or increasingly finance/economic affairs and tend to remain in their roles for a longer time frame of over 5 years and are therefore also more likely to participate in several UNFCCC negotiations. Some participated in the UNFCCC negotiations or worked on climate change related topics for over ten years as a comparison of the UNFCCC participation lists over a decade illustrates (UNFCCC 2005-2015), while others entered the climate negotiations and gained new knowledge about climate-related topics through job rotations as civil servants or career changes (Interview 1, 2, 12). It is important to differentiate between those groups when analyzing learning as the level of pre-existing knowledge on climate change and technical topics matters. The level of specialization is usually high given complex topics such as emissions trading, measuring, reporting and verification of greenhouse gas emissions, reducing emissions from deforestation and forest degradation. If the individual is already an expert in any of those areas, they are more likely to act as 'teachers' (Bomberg, 2007) by offering their expertise to other negotiators and explaining technical details when the need arises. They are less likely to gain a significant amount of new knowledge from participating in the negotiations; thereby their learning can be rather classified as incremental. They also participate in 'side events' by organizing and contributing to panels on dedicated topics that aim at disseminating information about e.g. the latest climate science or governance research findings and offer a forum to discuss questions in a non-negotiation setting that encourages a more open exchange of ideas and knowledge than in the formal negotiations. Actors who only began to attend UNFCCC negotiations relatively recently experienced a steep learning curve with regards to being presented with and reflecting on an overwhelming wealth of knowledge about the different sub-topics of the climate negotiations and especially the

area they are specializing in such as climate finance, technology transfer or the finer points of measuring, reporting and verifying greenhouse gas emissions (Interview 5, 9, 10, 12, 14).

It is to a certain extent unavoidable for individuals involved in the negotiations to engage in factual learning by reflecting on new knowledge provided by e.g. the Earth Negotiations Bulletin, the reports of the Intergovernmental Panel on Climate Change (IPCC) or in workshops focused on exchanging experiences with national climate policies. Government representatives filter the information they receive through the lens of their national interests and compare how they fit with the existing negotiation position (Weible, 2008). If the new information matches with the pre-existing negotiation position, they engage in a political use of the knowledge to underpin their arguments and try to convince other negotiators with scientific studies of the viability of their proposals (Interview 2, 5). If however the information does not match their negotiation position, they either enter a state of defensive avoidance by ignoring the input or, as long as the new information is compatible with the underlying beliefs of their government or negotiation coalition, they reflect on the new input and may arrive at the conclusion that their negotiation position needs to be changed to reflect the new knowledge.

For the UNFCCC negotiations, the Intergovernmental Panel on Climate Change (IPCC) provides the main input regarding the latest evidence on climate change via its Assessment Reports. The 4th Assessment Report (IPCC, 2007) had a major effect on individual negotiators to reflect on the input, learn about the exacerbating effects of climate change and to acknowledge in the face of the overwhelming scientific evidence provided by the IPCC that the climate crisis exists and that it requires a global response (Interview 5, 8, 13, 14). This consensus was maintained among UNFCCC negotiators also in the light of 'climate gate' and rising levels of climate skepticism fuelled by attempts of the fossil fuel industry and closely linked government officials to dispute the scientific consensus. The 5th Assessment Report of the IPCC (2014) resulted in an updating of individual negotiator's knowledge in terms of recognizing that the climatic changes communicated by the 4th Assessment Report were progressing faster with more intensive weather impacts (Interview 13, 14).

The second major learning process among individual negotiators occurred between 2010 and 2015, when certain countries assumed leadership positions in the cli-

mate negotiations by setting up domestic climate change policies covering mitigation and adaptation efforts and began to present their achievements within the UNFCCC negotiations. This took initially the form of roundtable discussions and side events between 2010 and 2013, until a significant part of the 2013 May UN climate talks in Bonn was dedicated to countries presenting their low carbon economic development plans and domestic climate change legislation. In this time frame an increasing number of developed and developing countries began to set up ambitious climate policies (Nachmany et al., 2014). These policies were further enhanced by a multitude of non-state actors such as regions, cities, businesses and investors setting up initiatives for decarbonization and divestment from fossil fuel investments, resulting in strong 'bottom-up' action through national-level policies (Falkner, 2016). This wealth of information allowed lead negotiators usually fully emerged in the core negotiations to also update their knowledge on other countries' climate policies and reflect on information regarding how climate policies can be designed in similar national contexts. They began drawing lessons from other actors' experiences on the challenges and opportunities of such policies with regards to decoupling economic growth from carbon emissions via investments into renewable energies and energy efficiency (Interview 3, 5, 9, 12, 13).

The factual learning that occurred among individual negotiators both about climate science as well as options for low carbon economic development and climate policies was transferred to the organizational level of national governments and non-national actors once the individuals convinced their central decision-makers or were in a position themselves to adopt a negotiation position that reflected the learning among actors on the individual level. This was evidenced by speeches and statements given on behalf of national governments and multinational negotiation groups in recognition of the scientific findings of the IPCC reports and by requests for more information regarding the effectiveness of other countries' climate policies (Interview 2, 3, 6, 10) as well as calls for assistance to develop their own climate policies in the form of INDCs (Intended National Contributions) in response to the Paris Agreement (Interview 1, 2, 7, 11).

Experiential learning

Learning based on experiences requires individuals and/or organizations to reflect on their previous experiences and to either confirm their course of action based on the previous experiences or to modify it. Individuals usually engage in experiential learning by being involved in the UNFCCC negotiations. They gain new experience regarding the decision-making process within their governmental or non-governmental delegation and negotiation bloc as well as modify their negotiation strategies and tactics based on their experiences of what helps them to achieve their objectives – and what is rather a hindrance (Interviews 1, 3, 4, 9, 12). As learning is measured from the baseline of pre-existing experience, new entrants to the negotiations experience a steeper learning curve than 'veteran' negotiators who have several years of negotiation experience within the UNFCCC and/or related negotiations. Experienced negotiators also possess a larger network and have built a higher level of trust to other negotiators, which allows them to also benefit from their experiences. They however act less as learners themselves (as there is little new for them to learn in terms of negotiation tactics) than as 'teachers' (Bomberg, 2007) by supporting more junior negotiators to benefit from their experience (Interview 1, 4, 5, 10, 12). Senior negotiators' previous experiential learning over several years of UNFCCC negotiation also enables them to act as policy entrepreneurs (Mintrom, 2013; Mintrom & Norman, 2009) by taking on leadership roles, actively promoting their proposals and convincing other actors of its importance and feasibility by repeating arguments, emphasizing facts and positive outcomes of impact assessments or scientific studies and using their personal capabilities (Braun, 2009). These activities of individual policy entrepreneurs can result in convincing other actors in their own delegations and especially across negotiation groups of the importance to support their proposals. Thus, policy entrepreneurs are central to transfer their individual learning to the organizational level.

Two experiential learning instances were particularly influential on the road to the Paris Agreement. The COP-15 climate negotiations in Copenhagen were widely regarded as a failure to arrive at the needed global new agreement to effectively address climate change, resulting in a fragmentation of the climate change regime and putting the future of the climate negotiations in jeopardy (Christoff, 2017). Reflections on this 'failure' resulted in a number of individual and experiential learning processes.

The President of COP-15 Connie Hedegaard was appointed European Commissioner on Climate Action from 2010-2014. During her tenure as Commissioner, she used policy entrepreneurial strategies to convince her counterparts and achieve her negotiation objectives. Previous colleagues described her as "a very strong person, with her own views and a lot of self-confidence, as most politicians have (…) hard-working and very energetic, so quite remarkable" (Interview 12). This dedication was linked to her reflection on her experience as COP-15 President and strong drive to still achieve a meaningful climate agreement, having "a bit to prove now, because [COP-15] was considered a failure and then she was appointed Climate Commissioner, so she can't really afford to fail again. I think she has an extra motivation, working very hard where she is now" (Interview 12). Subsequently, she played a central role in brokering an agreement with the developing countries, especially India, to negotiate some kind of comprehensive climate agreement of legal character under the Durban Platform for enhanced Action (Rajamani, 2012), which ultimately resulted in the Paris Agreement. The 'side payment' was to extend the expiring Kyoto Protocol to include a second commitment phase from 2012 until the new agreement would enter into force in 2020, although this de-facto meant unilateral EU commitments to reduce emissions (Interviews 4, 9, 15).

The second major aspect of experiential learning that influenced the negotiation outcome was the reflection of the UNFCCC secretariat, especially of the Executive Secretary, as well as the COP-16, COP-17, COP-18, COP-19, COP-20 and especially COP-21 Presidencies on their previous negotiation experiences and the COP-15 negotiations. They concluded that the negotiation process requires a different leadership approach with regards to a high level of transparency to 'take every country along' (Interview 2) and give the negotiations the level of legitimacy required to avoid that individual countries object to the draft agreements. They emphasized a 'common landing zone' and focused on town hall-type meetings that listened to every negotiator's concerns and at the same time established rules encouraging constructive and innovative suggestions on moving towards common ground as opposed to simply voicing objections. These informal negotiation formats of 'Indabas' were introduced by the South African Presidency in Durban in 2011 and continued to be used by the French Presidency into the hours leading up to the Paris Agreement (Nhamo and Nhamo, 2016). They also paired ministers from developed and developing countries to work through

the most controversial issues together, a tactic used successfully at the Cancun 2010 negotiations (Monheim, 2014). Furthermore, the French Presidency reflected on the tactical errors made during the Copenhagen COP-15 negotiations, in particular the loss of trust among the majority of countries excluded from the closed door negotiations among the major greenhouse gas emitters who were accused of "drawing up a 'secret text'" (Morales, 2015). Subsequently, the focus at COP-21 was on emphasizing the inclusiveness of the process and that "nothing is agreed until everything is agreed" (Interview 10), as well as adapting the strategic management of the negotiations to take into account developing countries' concerns (Morales, 2015). These measures illustrate how individuals reflected on their own and other's experiences with previous UNFCCC negotiations and drew lessons on what worked and did not work. This also resulted in experiential learning on the organizational level as governments and the UNFCCC secretariat as a whole reflected on these experiences and changed their approaches and strategies with regards to managing the process of the negotiations (Monheim, 2014).

Constructivist learning

If individuals and countries change their underlying beliefs regarding an issue following a reflection on a knowledge or experience-based input, they engage in constructivist learning. This learning type can be regarded as relatively rare and particularly useful in achieving negotiation breakthroughs as well as lasting policy change at the implementation stage on the national level. It can be 'self-perpetuating' given that the individual, organization or country changed the way they 'see things' and in the future use their adapted beliefs as compass guiding their actions and decisions. In the UNFCCC negotiations between 2011 and 2015, remarkable constructivist learning occurred especially among developing country negotiators and, by extension, within their governments and countries. As illustrated in the section on factual learning, both developed and developing countries alike began to present their low carbon economic development plans and climate change policies in side events, at roundtables and increasingly within the formal UNFCCC negotiations. This resulted in institutionalized days

of exchanging best practices and showcasing lessons learned from developing and implementing climate policies (UNFCCC, 2018). The UNFCCC thus evolved into a 'learning forum' with various platforms and initiatives aimed at policy transfer, policy diffusion, lesson drawing and showcasing best practices (Rietig, 2014). This group pressure put increasing pressure on 'laggard' countries to explore how they can set up low carbon economic development plans themselves and how they can pick 'low hanging fruits' in the areas of energy efficiency and renewable energies (Interview 7, 10, 11, 12). Especially renewable energies have dropped in price far enough to increase their competitiveness compared to fossil fuels, which provided new incentives for developing countries to consider shifting their infrastructure investment to integrate resilience and low carbon objectives (Interview 8).

The constructivist learning on the organizational level is particularly illustrated in the shift in perspective among developing countries. Although they are exempted from greenhouse gas emission reductions under the Kyoto Protocol, they reflected on the benefits of setting up their own climate policies in support of low carbon economic development (Ivanova, 2016) and realizing other co-benefits such as reducing air and water pollution. This is evidenced by hundreds of pieces of climate change related policies and legislation set up in developing countries between 2008 and 2015 (Nachmany et al. 2014). The INDCs are a voluntary measure on the side of developing countries to shift to a low carbon trajectory in line with the principle of common but differentiated responsibilities. Individual negotiators convinced their governments, together with non-state actors, that there are 'win-win' opportunities in addressing climate change while realizing countries' right to development. They formed this new belief and embraced it in their INDCs. This narrative marks a strong shift away from the dominant perspective within the UNFCCC negotiations that addressing climate change equals sacrificing economic growth and results in job losses. Countries instead began to embrace a positive narrative regarding shifts to a green economy, green growth and green jobs and understanding this shift as sources of new economic growth (Interview 1, 3, 4, 7, 10, 14).

Especially non-national actors played a pivotal role in facilitating constructivist learning by acting as policy entrepreneurs and 'teachers' (Bomberg, 2007). They "effectively identified the landing ground for the agreement, then encircled and squeezed the world's governments until, by the end of the Paris conference, they were standing

on it" (Jacobs, 2016). The Global Commission on the Economy and Climate's report generated significant momentum among parties. It picked up on the 2006 Stern Review's narrative on combining economic growth with climate action into 'Better Growth, Better Climate' (New Climate Economy, 2014) and was communicated by leading figures such as the former Mexican President Calderon at the 2014 Lima UNFCCC negotiations. Together with the 5th Assessment Report of the IPCC, the business community picked up on the positive narrative of co-benefits. It reflected on the feasibility and forming new beliefs that the climate crisis can be addressed by viable investments in clean technologies and divesting their investments in the 'stranded assets' of fossil fuels to low carbon technologies (Jacobs, 2016). Inspired by the 'We Mean Business' coalition, 6.5 million businesses urged governments for climate action by December 2015. This was also a result of the environmental NGOs global campaign efforts against fossil fuel investments based on the Carbon Tracker's concept on 'unburnable carbon' and global mass mobilization of 42 million supporters by activist NGOs such as Avaaz to put public pressure on governments (Jacobs, 2016). Public pressure from non-state actors on governments gained further momentum in the wake of the Climate Summit of September 2014 organized by UN Secretary General Ban Ki-Moon, when cities and businesses made ambitious pledges, launched new initiatives (Hale, 2016) and over 400,000 members of civil society made headlines with their climate march (Jacobs, 2016; Interview 2). Overall, such policy entrepreneurial activities of non-national actors and their efforts at 'teaching' government delegates about the benefits of combining climate policies with economic development played a pivotal role in opening up the window of opportunity for the Paris Agreement to emerge. Their strategies of mobilization can be traced back to reflecting on their experiences leading up to the Copenhagen climate change conference, when their influence remained limited and far behind expectations.

Timing played a very important role. In 2009, developing countries were not yet willing to commit to reducing their emissions, as they believed this would mean sacrificing development and inducing economic hardship on their populations. It also violated beliefs regarding climate justice aspects – and in particular feelings of being at the receiving end of further colonial-era injustices at the hands of the developed countries who industrialized by exploiting developing countries' natural resources, burning fossil fuels and locking themselves into carbon-intensive infrastructures and lifestyles,

while at the same time denying developing countries their right to similar economic development pathways to address social injustices and invest in education, health and lift millions out of poverty via economic growth (Interview 4, 7). This belief only began to change gradually between 2010 and 2015 when it became clear that even if the developed countries stopped emitting greenhouse gases, the emissions from developing countries would still exacerbate climate change (Canete, 2015). Especially since China overtook the United States as the world's largest emitter and the dire consequences of air and water pollution began to threaten political stability in China, the Chinese government reacted by enshrining the shift to a low carbon economy in their five-year plans. In 2009 renewable energies were also not yet a viable alternative to installing fossil fuels as their higher prices called for subsidies to support their uptake in domestic energy markets. By 2015, the price of renewable energies dropped to a level that made them competitive with fossil fuels, including coal. The capacity to set up smart grids and manage the constant provision of electricity has also improved significantly (Covington, 2017). A number of key governments from China (Hilton and Kerr, 2017), the United States, Germany, the UK to India (Dubash, 2017; Walsh et al., 2011) benefitted from dedicated leaders who acknowledged that climate change is a serious threat to their countries' future economic prosperity and that acting upon it is in their national interest. This marked a crucial change in beliefs that allowed overcoming the negotiation deadlock. This constructivist learning allowed the international community to make use of the 'window of opportunity' that was carefully orchestrated by policy entrepreneurs in December 2015.

DISCUSSION ON THE RELEVANCE OF LEARNING FOR THE NEGOTIATION OUTCOME

The empirical section analyzed how learning among individuals and countries mattered and facilitated the negotiation outcome in the form of the Paris Agreement. This narrative of learning as a facilitating factor for policy change sheds light on how negotiation deadlocks can be overcome in negotiations. Policy entrepreneurs learned from their past failures by reflecting on their experiences and changed their negotiation strategies.

A number of key individual and organizational policy entrepreneurs included the UNFCCC secretariat (in particular the Executive Secretary), the UN Secretariat (especially the UN Secretary General), Chairs and Rapporteurs of sub-committees, the Peruvian and French Foreign Ministers holding the COP-22 and COP-23 Presidencies, as well as a number of national government representatives and non-national actors (cities represented in C40 and the Covenant of Mayors, academics and NGO representatives). These individuals and organizations acted as policy entrepreneurs by going well beyond their job description and forming coalitions, carefully strategizing how the negotiation deadlock might be overcome, passionately persuading other actors and forming strong coalitions (Mintrom, 2013). They made use of the 'historical window of opportunity' that presented itself to carefully orchestrate the negotiation outcome, while their negotiation strategies were based on previous experiential learning in the ten years leading up to the negotiations on the Paris Agreement. This enabled these policy entrepreneurs to 'teach' other national government representatives of the importance to address climate change and persuade them why it is in their interest to develop INDCs. The new, positive narrative around 'low carbon economic development' helped countries to overcome their decade-old opposition to climate policies, change their underlying beliefs on the economic impacts of climate policies (from a win-lose to a win-win perspective focusing on the benefits of climate policies for low carbon economic development) and to embrace INDCs to harvest the fruits of co-benefits from sustainable development. All three learning types were present in the examined case. Constructivist learning in the form of belief changes regarding the benefits of low carbon economic development policies occurred among developed and developing countries as a result of experiential learning and factual learning, both on the individual and on the organizational level. The experiential learning in the form of reflecting on national government's positive experiences with low carbon technologies was highly relevant for the negotiation outcome to emerge. The experiential learning by the UNFCCC secretariat and national government representatives involved in managing the negotiations (e.g. Presidencies, Committee Chairs) was also crucial. They reflected on how they could more effectively guide the negotiations towards the 'common landing zone' and subsequently emphasized the importance of transparency and inclusiveness to increase legitimacy – two key elements that were identified as lacking in the failed COP-15 negotiations in Copenhagen. Table 2 summarizes the empirical findings.

	Other explanations than learning	Factual learning	Experiential learning	Constructivist learning
Individual level	Limited and/or linked to learning	Individuals reflected on scientific evidence on climate change, recognition and diffusion of national climate legislation	Key individuals reflected on their experiences (successes and failures) and became highly involved policy entrepreneurs	Group pressure from other countries' climate policies and low carbon development plans results in competition for more ambitious climate action following individuals' reflection on the compatibility of climate action and economic development, conclusion that climate action is in the interest of developing countries
Organizational level	Influence of non-national actors, which however facilitated learning among national actors and helped changing their beliefs on the compatibility of climate action and economic development	Urgency of climate crisis communicated by 5th IPCC report	Reflection on 'failures' of COP-15, subsequent emphasis on inclusive and transparent negotiation process	Change in beliefs regarding compatibility of climate action and economic development, focus on long-term low carbon development architecture, emerging win-win perspective on combining climate action with economic prosperity; developing countries like China, India and Brazil acknowledge their responsibility to shift to low carbon economic development pathways

Table 2. Summary of key findings on learning types present within UNFCCC negotiations. Compiled by author.

The central finding of this article is not only that learning mattered; but also that learning was an important multiplying factor that facilitated and reinforced the positive effect of policy entrepreneurial activities of national governments and non-national actors for resolving the negotiation deadlock. Not one factor alone explains why it was possible to overcome the decade old negotiation deadlock in the UNFCCC and to arrive at the comprehensive climate agreement the world failed to secure in 2009, but learning is one of the central analytical lenses that helps to gain a more in-depth understanding of the interactions of different negotiation dynamics at play. The theoretical framework (Rietig & Perkins, 2018) succeeded in providing an analytical lens to identify and evaluate the relevance of learning in an international negotiation process. Drawing on Janis and Mann (1977) and Mintrom (2013), it identifies policy entrepreneurs as key agents in transferring learning from the individual level to the organizational level of e.g. a national government's official negotiation position. Based

on the contributions made by Radaelli (1995), Argyris and Schön (1978), March and Olsen (1975) the framework uses the knowledge and experience 'archetypes' of learning to increase analytical precision compared to the partly overlapping learning labels that emerged in the 1990s/2000s (Bennett and Howlett 1992; May 1992; Zito and Schout 2009). Especially drawing on the International Relations literature (Haas and Haas, 1995; Nye, 1987) allowed to dissect how beliefs on the individual and organizational level changed with regards to the benefits of climate action for economic development. The aspects of learning identified with this framework point towards the facilitating role of learning in arriving at policy change in the form of overcoming the negotiation deadlock and adopting the Paris Agreement.

CONCLUSION

In conclusion, it could be argued that the world was not yet ready for a climate agreement in 2009, but without the failure of 2009 and the lessons learned from this experience, the 2015 triumph would not have been possible. This contribution offered insights into the relevance of learning from failure and how policy entrepreneurial activities of national governments and non-national actors helped to change beliefs on national interests with regards to the co-benefits of climate policies for economic development. Learning facilitated achieving the breakthrough in the UNFCCC negotiations to arrive at the Paris Agreement on Climate Change.

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